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BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

MINSKEY, JACOB T

ART UNIT	PAPER NUMBER
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1791

NOTIFICATION DATE	DELIVERY MODE
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04/14/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/553,358	Applicant(s) AHLGREN ET AL.	
	Examiner JACOB T. MINSKEY	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-31 and 35-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-31 and 35-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/19/2010 has been entered.

Response to Arguments

2. The Examiner acknowledges the amendment to claim 35.
3. Applicant's arguments with respect to claims 2-31 and 35-49 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 1791

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 2-4, 7-8, 11, 14-31, 35-38, 42-43, and 45-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckner et al, USP 3,758,376 in view of Keiser et al, US Patent Publication 2001/0030032.

8. Regarding claims 35 and 36, Beckner teaches a process of manufacturing paper (see abstract) that comprises the steps of pre-treating titanium dioxide with a colloidal magnesium silicate with an average particle diameter of 20 millimicrons (column 3 lines 40-43 and example II) by putting them in suspension (see examples I-III), adding the pretreated titanium dioxide filler into a cellulose fiber slurry (column 4 lines 1-5), treating the slurry stock with a cationic retention agent (cationic starch and rosin, column 4 line 7), and then filtering, forming, and drying the mixture into a paper (column 4 line 6 and 11-17).

Art Unit: 1791

9. Beckner is completely silent on the molecular weight of the cationic starch that is added to the paper furnish prior to formation.

10. In the same field of endeavor of adding cationic starches to paper furnish for the intent to improve retention and strength, Keiser teaches the act of adding a cationic starch or polymer that has a molecular weight of greater than 500,000 Daltons (claims 40 and 54) as a retention and strengthening agent to a paper slurry [0021-0022] that has had other additives and fillers including titanium dioxide, clays, and mineral fillers [0042].

11. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of a high molecular weight cationic polymer/agent as taught by Keiser in the Beckner method (that teaches the addition cationic agents, but is silent on specific weights and properties) for the benefit of utilizing an effective retention agent added to the paper furnish to increase the economic and physical benefits of the paper and paper making process.

12. Regarding claims 2-3 and 7, Beckner further teaches that the filler is treated with anionic magnesium silicate (column 3 lines 40-44).

13. Regarding claim 4, Beckner further teaches that the filler is pretreated with a synthetic silicate (described in column 3 lines 40-61).

14. Regarding claim 8, Beckner further teaches that the magnesium silicate has an average particle size of about 20 nm (column 3 line 43).

15. Regarding claim 11, Beckner further teaches that all of the filler is mixed with the magnesium silicate prior to mixing with pulp slurry (column 4 line 33).

Art Unit: 1791

16. Regarding claim 14, Beckner further teaches that the filler is treated by combining slurries of the filler and the magnesium silicate (column 4 line 33).
17. Regarding claim 15, Beckner further teaches that concentration of the magnesium silicate solution is 2% (column 3 line 66).
18. Regarding claims 16-19 and 43, Beckner further teaches that the filler is titanium dioxide with an average particle diameter of 200 nm (column 3 line 14).
19. Regarding claim 20, Beckner further teaches that the total amount of filler is 10% of the stock (column 4 line 4).
20. Regarding claims 21 and 45, Beckner further teaches that the filler slurry has a concentration of 50% (column 3 line 67).
21. Regarding claim 22, Beckner further teaches that the cellulose fiber is a combination of sulfate (chemical) and kraft wood fibers (column 4 lines 1-2).
22. Regarding claim 23, Beckner further teaches that the cellulose stock has a consistency of 3% (which is the same as 30 g/l, column 4 line 1).
23. Regarding claims 24 and 46-47, Beckner teaches that a mixture of a 2% magnesium silicate solution is mixed with a 50% filler solution (see example II and III) and is then mixed with a 3% solution of cellulose fibers (column 4 line 1). Beckner further teaches that the fillers are added to the furnish so that 10% of the slurry is filler (column 4 line 4). While Beckner does not explicitly give a value of the consistency of the pulp slurry after the additives are added, one of ordinary skill in the art would expect that the consistency of the pulp would be close to the claimed amount of 0.3-2% (3-20 g/l) and that the claimed ranges of the prior art are close enough to expect the same

Art Unit: 1791

properties and benefits of the instant claim (Titanium Metals Corp. of America v. Banner, 778 F.2d 775, 227 USPQ 773, Fed Cir. 1985).

24. Regarding claim 25, Keiser teaches that the cationic retention agent has a molecular weight of at least 500,000 g/mol (see claims 40 and 54).

25. Regarding claims 26 and 27, Keiser further teaches that the retention agent is a starch (claim 54 and [0034-0036]).

26. Regarding claims 28 and 48, Keiser further teaches that the polymer is added from 0.005-0.2 weight percent of fiber ($25-1,000 \text{ g/t} = 0.0028-0.1102\%$, see [0023]).

27. Regarding claims 29 and 49, Keiser further teaches that the stock can be treated with anionic collide particles [0038-0039].

28. Regarding claim 30, both Keiser and Beckner teach that the actual formation of the paper is done through means that are commonly known in the art. The use of a specific screen size in the formation of the paper is well known to one of average skill in the art, and an optimal steel wire would have been selected for the formation steps after the reading of the references.

29. Regarding claim 31, Keiser teaches the act of additionally adding carbon black to the furnish for improved characteristics (column 4 line 10).

30. Regarding claims 37 and 38, Beckner further teaches that the magnesium silicate has an average particle diameter of 20 nm (column 3 line 43).

31. Claims 6, 10, and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckner et al, USP 3,758,376 in view of Keiser et al, US Patent

Art Unit: 1791

Publication 2001/0030032 in further view of Wen, US Patent Publication

2003/0024437.

32. Regarding claim 6, Beckner does not explicitly teach the use of a silica sol or polysilicic acid as the colloidal particle.

33. In the same field of endeavor of pre-treating TiO₂ with an inorganic particle to use in retention agents for paper, Wen teaches a method of pre-treating a titanium dioxide filler [0021] with a spherical [0013-0014] inorganic particle (silica, [0021 and 0068-0074]) having an average particle size of 5-50 nm [0021] and then adding the pretreated mixture into a slurry of cellulose fibers (inherent from the teaching that the additive is intended for the wet end of paper making [0002, 0004, and 0081]).

34. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Wen's teachings of a silica sol in the Beckner method for the benefit of utilizing a common and relatively cheaper material that is known in the art to aid in the retention of the paper for economic reasons.

35. Regarding claims 10 and 40, Beckner teaches the addition of the colloidal particles in a slightly higher concentration (0.5% of total slurry and 5% in comparison to weight of just the filler, see Example 1) in comparison to the 0.0055-1.102% range provided in claim 10. Wen teaches that the amount of silica added to the filler comprises about 2-20%. An average artisan will always try to find the minimal amount of an additive to add to the process for the benefit of saving money and materials. It is the Examiner's stance that the teaching of "about 2%" would aid one of ordinary skill in

Art Unit: 1791

the art in the process of optimizing the amount of particles to add with minimal routine experimentation.

36. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beckner et al, USP 3,758,376 in view of Keiser et al, US Patent Publication 2001/0030032 in further view of Neivandt et al, US Patent Publication 2005/0150621.

37. Regarding claim 5, Beckner and Keiser remain as applied in claim 3, but do not explicitly teach that the anionic colloidal particles consist of smectite or montmorillonite-based (bentonite) silicate.

38. In the same field of endeavor of treating pulp fillers, Neivandt teaches that the anionic colloidal particles consist of smectite or montmorillonite-based (bentonite) silicate (montmorillonite and bentonite, [0026]) for the benefit of providing an anionic inorganic colloid to increase the retention of the paper manufacturing.

39. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Neivandt's use of bentonite as the anionic colloid in the Freeman/Satterfield method for the benefit of providing an anionic inorganic colloid to increase the retention of the paper manufacturing.

40. Claims 9 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckner et al, USP 3,758,376 in view of Keiser et al, US Patent Publication 2001/0030032 in further view of Lunden et al, USP 6,887,351

41. Regarding claims 9 and 39, Beckner remains as applied above, but is silent on the BET of the colloidal particles.

Art Unit: 1791

42. In the same field of endeavor, Lunden teaches that a colloidal precipitated calcium carbonate (PCC) can be mixed with another filler (titanium oxide is listed as one, column 3 lines 40-64) and then added to a paper slurry (see column 4). Lunden further teaches that the BET of the PCC is between 10-100 m²/g (column 2 line 54).

43. It would have been obvious to one of ordinary skill in the art at the time of the invention that the PCC having the claimed BET can be utilized as either a replacement of the silicate taught by Beckner or as a teaching of a preferred BET that the particle should have, because both references teach for a common end result and provide interchangeable known components that would provide said end result with a reasonable expectation of results.

44. Claims 12 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckner et al, USP 3,758,376 in view of Keiser et al, US Patent Publication 2001/0030032 in further view of Werner et al, USP 2,992,964.

45. Regarding claim 12, Beckner is silent on the aspect of only treating a part of the filler.

46. In the same field of endeavor of pre-treating filler and then adding to a paper furnish, Werner teaches a process of treating a mineral filler (titanium dioxide) with a clay or calcium carbonate before adding the suspension to a fiber slurry. Werner further teaches that either all or part of the filler can be pretreated (column 4 lines 47-58).

47. It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize Werner's teaching of only treating part of the filler in the Beckner method for the benefit of saving material and capitol during the production process.

Art Unit: 1791

48. Regarding claim 44, Werner further teaches that the total amount of filler is from 1-50% of the total fiber stock (column 5 line 4).

49. **Claims 13 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckner et al, USP 3,758,376 in view of Keiser et al, US Patent Publication 2001/0030032 in further view of Wen, US Patent Publication 2003/0024437, and in further view of Werner et al, USP 2,992,964.**

50. Regarding claims 13 and 41, Beckner teaches the addition of the colloidal particles in a slightly higher concentration (0.5% of total slurry and 5% in comparison to weight of just the filler, see Example 1) in comparison to the 0.0055-1.102% range provided in claim 10. Wen teaches that the amount of silica added to the filler comprises about 2-20%. An average artisan will always try to find the minimal amount of an additive to add to the process for the benefit of saving money and materials. It is the Examiner's stance that the teaching of "about 2%" would aid one of ordinary skill in the art in the process of optimizing the amount of particles to add with minimal routine experimentation.

51. **Claims 35 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cornec et al, WO 99/35193 A1 in view of Wen et al, US Patent Publication 2003/0024437 A1.**

52. Regarding claim 35, Cornec teaches a method of making an opacifying agent from a titanium oxide filler that is pre-treated with an aqueous dispersion of a colloidal silica spacing agent prior to adding both components into a paper slurry (see claim 1

Art Unit: 1791

and further details in claims 2-30). Cornec further teaches that an inorganic treatment is performed on the mixed floc (see claim 29).

53. Cornec does not teach a specific size to the inorganic colloidal particles.

54. In the same field of endeavor of pre-treating TiO₂ with an inorganic particle to use in retention agents for paper, Wen teaches a method of pre-treating a titanium dioxide filler [0021] with a spherical [0013-0014] inorganic particle (silica, [0021 and 0068-0074]) having an average particle size of 5-50 nm [0021] and then adding the pretreated mixture into a slurry of cellulose fibers (inherent from the teaching that this is an additive for paper making [0002, 0004, and 0081]).

55. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine Wen's teachings of a silica sol in the Cornec method for the benefit of utilizing a common and relatively cheaper material that is known in the art to aid in the retention of the paper for economic reasons.

56. Regarding claim 9, Cornec further teaches that the specific area of the silica is 20-300 m²/g (claim 15).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB T. MINSKEY whose telephone number is (571)270-7003. The examiner can normally be reached on Monday to Friday 7:30-5:00 EST.

Art Unit: 1791

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JTM

/Eric Hug/
Primary Examiner, Art Unit 1791